REMARKS

In the Office Action dated March 15, 2006, the Examiner rejected claims 19, 20, 22, 24-27, 31, 33 and 34 under 35 USC 102(e) as anticipated by Capote (US Publication 2002/0014703), rejected claims 21, 23, 28, 29, and 30 under 35 USC 103 as unpatentable over Capote, and rejected claims 35-42 under 35 USC 103 as unpatentable over Capote in view of Pasadyn (US Patent 6,605,479), rejected claim 32 and 43 under 35 USC 103(a) as unpatentable over Capote, Pasadyn, and Chiu (US Patent 6,391,683). In response thereto, the Applicants have amended claim 19. Claims 19-43 remain at issue.

THE ART REJECTION

The Examiner rejected certain claims as anticipated by Capote. The Applicants disagree. Capote does not anticipate the present invention as claimed.

The Capote publication teaches various methods for applying an encapsulant material 22 that is applied using either a liquid that is hardened or an adhesive tape that is applied to a chip. See Figure 3.

In Figure 12 for example, the encapsulant material 22 is a film laminated onto a tape. See paragraph [0036].

In the Figure 4 embodiment, the chip 10 is pre-coated with the encapsulant material 22 prior to assembly to the substrate 20. Specifically, the encapsulant is uniformly spread across the surface 16 of the chip 10 between the solder bumps 14. See paragraph [0037].

In the Figure 5 embodiment, the chip 10 is coated with a high temperature thermoplastic adhesive 19 and film 21 (see figure 12), then the contact pads 24 are exposed by making vias through the encapsulant 22 with a laser, plasma or chemical etch, photo-imaging, etc. See paragraph [0038].

Contrary to the Examiner's statements in the rejection, there is no discussion whatsoever in paragraph [0038], or elsewhere in the reference, teaching or suggesting the cutting of the edges of the encapsulant 22.

In the Figure 10 embodiment, the chip 10 is pre-coated with a first film 37 laminated onto the chip 10 while the substrate 20 is pre-coated with a second film layer 39. Together, the first and second films form the encapsulant material 22. See paragraph [0039].

The Capote reference thus teaches the application of either an adhesive tape or a liquid that is applied and hardened onto a surface of a flip chip. Nowhere, however, does Capote teach

or suggest a flip chip having a substantially uniform layer of underfill adhesive where the flip chip and the underfill adhesive material, together, form continuous cut edges around the periphery of the flip chip. Capote therefore does not anticipate or suggest the present invention as claimed.

Certain claims were rejected based on the combination of Capote and Pasadyn. The Pasadyn reference is directed toward a method of identifying operational and defective die on a wafer. Other than both being broadly directed to semiconductors, the Capote and Pasadyn references have absolutely nothing in common. There is absolutely no reason why one of ordinary skill in the art working in the area of flip chip packaging would consider a reference related to the testing of dice on a wafer and vice versa. The two references are therefore not combinable as suggested by the Examiner.

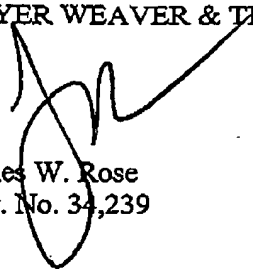
Even if it were proper to combine the two references, it still would not result in the present invention as claimed. Instead, the proposed combination would result in the flip chip of Capote that is tested while still in wafer form using the metrology technique as taught by Pasadyn. The proposed combination, however, would not teach a wafer having a partially cured underfill adhesive layer formed on the active surface of a flip chip wafer.

Lastly, the two references actually teach away from one another. The Capote reference explicitly teaches the application of either an adhesive tape or a liquid that is applied and hardened onto a surface of an individual flip chip, whereas the Pasadyn reference is directed to using a metrology tool to identify good and bad die on a wafer. One reference is therefore at the wafer level, while the other is at the chip level. The two references therefore teach away from one another.

Therefore, the Examiner has failed to demonstrate a prima facie case of obvious. The claims rejected based on the combination are therefore allowable.

The Applicants' believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP



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